Specialist High Skills Major

Sector-Specific Guide

The Environment

DRAFT 2007–2008

reach every student

Ontario

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A. Overview

The Specialist High Skills Majors (SHSM), launched in September 2006, are part of the Student Success Strategy, which focuses on expanding quality learning opportunities and supporting success for all students. The SHSM is a ministry-approved specialized program that allows students to focus their learning on a specific economic sector while meeting the requirements for their Ontario Secondary School Diploma (OSSD). This career-focused program is also designed to help prepare students to make the transition from secondary school to apprenticeship training, college, university, or the workplace. An SHSM enables students to gain sector-specific skills and knowledge in the context of engaging, career-related learning environments and helps them focus on graduation and on pursuing their postsecondary goals.

The ministry has published the *Specialist High Skills Major Implementation Guide*, as well as sector-specific guides, like this one, for each of the SHSM economic sectors. Boards and schools are strongly encouraged to refer to the *SHSM Implementation Guide* along with the SHSM sector-specific guides when planning and implementing an SHSM.

This guide provides information about the five required components of the SHSM–The Environment, sample pathways for the SHSM, examples of postsecondary programs in the sector, a list of resources, and profiles of the programs that were being offered in Ontario schools in 2007–08.

B. Advantages of Earning a Specialist High Skills Major (SHSM) in the Environment

Employment in the environment sector has boomed in recent years and existing labour shortages in this sector are only expected to increase as regulations to meet Canada's goals regarding climate change come into effect, say industry experts.

On the numbers of workers in this sector, Grant Trump, president of Environmental Careers Organization Canada (ECO Canada), said the following in a May 29, 2007, news release:

> *The scope of the environment industry is very broad and is a component, to varying degrees, of every industry in Canada. There are approximately 530,400 environmental employees within major industry groups across Canada. This number represents 3.2% of Canada's workforce.*

ECO Canada's *Profile of Canadian Environmental Employment 2007** defines environmental employment as work in at least one of the sectors of the economy related to:

- *Environmental Protection (i.e., air quality, water quality, land quality, waste management, restoration and reclamation, human and environmental health and safety, environmental protection management);*
- *Conservation and Preservation of Natural Resources (i.e., fisheries and wildlife, forestry, agriculture, mining, energy, parks and natural reserves, natural resources management);*
- *Environmental Sustainability (i.e., education, research and development, policy and legislation, communications and policy awareness, management for sustainable development).*

The SHSM–The Environment enables students to build a foundation of sector-focused knowledge and skills before graduating and entering a postsecondary destination, whether it be apprenticeship training, college, university, or an entry-level position in the workplace.

Pursuing the Specialist High Skills Major–The Environment enables students to:

- customize their secondary school education to suit their interests and talents while meeting the requirements for the OSSD;

* Published online, at www.eco.ca/pdf/LMI_Industry_Final_2007_EN.pdf. Retrieved November 22, 2007.

- select a bundle of 9 required credits focused on sector-specific knowledge and skills that are:
  - valued by the environment sector and postsecondary educational institutions;
  - designed to help prepare students for a postsecondary destination of their choice in this economic sector;
  - designed with the flexibility to allow students to shift between pathways (e.g., switch from a pathway leading to college to an apprenticeship pathway) or to discontinue the SHSM program should their career plans change in Grades 11 or 12;
- provide evidence of achievement of the required components of the SHSM (e.g., sector-recognized certifications) for prospective employers and postsecondary educational institutions;
- explore, identify, and refine career goals and make informed decisions about their postsecondary options;
- take part in "reach ahead" experiences that will help them gain confidence in their ability to be successful, refine skills and work habits, and make an informed choice about future careers and next steps;
- develop Essential Skills and work habits that are required in the sector, and have their performance of those skills and work habits assessed and documented, using tools connected with the Ontario Skills Passport;
- access resources, equipment, and expertise that may not be available in their secondary school.

C. Required Components for the SHSM–The Environment

Required Components for the SHSM–The Environment

1. a bundle of 9 Grade 11 and Grade 12 credits that includes:
   - (i) 4 environment major credits that provide sector-specific knowledge and skills;
   - (ii) 3 other required credits from the Ontario curriculum, in English and mathematics, in which some expectations are met through learning activities contextualized to the environment sector;
   - (iii) 2 cooperative education credits that provide authentic learning experiences in a workplace setting, enabling students to refine, extend, apply, and practise sector-specific knowledge and skills
2. 7 sector-recognized certifications and/or training courses/programs (4 compulsory and a choice of 3 from a list of additional certifications and training courses/programs)
3. experiential learning activities within the sector
4. "reach ahead" experiences connected with the student's postsecondary pathway
5. development of Essential Skills and work habits required in the sector, and use of the Ontario Skills Passport (OSP) for purposes of documentation

Students earning an SHSM receive an OSSD with a red SHSM seal as well as an SHSM Record that documents the student's achievement of each of the required components.

The five required components for an SHSM diploma designation are designed to give students a rich and varied range of curriculum-based and experiential learning experiences, as a foundation for making a successful transition to their chosen postsecondary education or training program or occupation.

Local circumstances, such as facilities and equipment, staff qualifications, partnerships, and agreements, determine how the SHSM's required components can be offered to students. Depending on these circumstances, the components may be delivered in a secondary school, college, training centre, other approved site, or a combination of these delivery settings. See the *SHSM Implementation Guide* for more information on delivery models.

No substitutions for any of the five required components of an SHSM are permitted.

1. Bundled Credits

Each SHSM has a bundle of credits that consists of major credits, other required credits, and cooperative education credits. The bundle for the SHSM–The Environment consists of:

i) 4 major credits;

ii) 3 other required credits;*

iii) 2 cooperative education credits.

The credits in the bundle prepare students for one of four postsecondary options – apprenticeship training, college, university, or the workplace.

i) Major credits

Each SHSM has four major credits that enable students to build a foundation of sector-focused knowledge and skills. The major credits may be:

- credits for Ontario curriculum courses;
- credits for ministry-approved locally developed courses (LDCs); or
- dual credits, which are subject to their own approval policies and procedures.

ii) Other required credits

In addition to the major credits, each SHSM includes other *required credits* from the Ontario curriculum. (In the SHSM–The Environment, the other required credits are in English and mathematics.) These courses are delivered by the teachers of the required subjects, and involve the use of contextualized learning activities (CLAs), which enable students to connect their learning in these courses to their SHSM sector. CLAs are based on curriculum expectations from the required course. One or more CLAs, totalling a minimum of six hours in length, must be incorporated into each required course. (A CLA template is provided in Appendix A.)

iii) Cooperative education credits

Cooperative education provides authentic learning experiences in a workplace setting that enable students to refine, extend, apply, and practise the sector-specific knowledge and skills acquired in the bundle of credits. Each SHSM requires that students complete a minimum of two credits in cooperative education linked to the major credits. (More than two credits are recommended, if the student's timetable permits.)

Students may earn their minimum of two cooperative education credits in Grade 11 and/or Grade 12, as a single credit in each grade or a double credit in one grade. (Students in the university pathway, however, are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.) Depending on local circumstances, students may have to complete their cooperative education credits through continuing education, in the summer, or through virtual cooperative education. See *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000*.

* SHSMs in other sectors may require 2 or 4 "other" credits. For details, see the other sector-specific guides.

Summary of the Required Credits in the Bundle for the SHSM–The Environment

The 9 required credits in the bundle for the SHSM–The Environment are identified in the table below. No substitutions for the credits in the bundle are allowed, and the credits must be at the specified grade level. School boards are required to submit for ministry approval their proposed pathway chart for each SHSM offered by their schools, indicating the credits in each bundle by pathway and, where applicable, by area of focus. Once a credit bundle is approved, the board may not change any of the credits in the bundle for that school year.

Required Credits in the Bundle for the SHSM–The Environment

Credits	Apprenticeship Training		College		University		Workplace	
	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12
Environment Major	2	2	2	2	2	2	2	2
English	1	1	1		1		1	1
Mathematics	1		1	1	1	1	1	
Cooperative Education	2		2		2		2	
Total number of credits	9		9		9		9	

A pathways chart is given on page 14, showing subjects and courses that students could take to explore the SHSM–The Environment in Grades 9 and 10, and courses they would have to take in Grades 11 and 12 to complete this specialized program. Sample bundles of credits that would meet the requirements for the SHSM–The Environment are provided on page 15.

2. Sector-Recognized Certification and Training

Sector-recognized certifications and training courses/programs, including those addressing safety, are important for students who are working towards the SHSM and provide them with an advantage when they are entering the workforce, whatever their chosen career goal may be.

Certification and training courses/programs must:

- be delivered by a certified trainer – a person recognized by the certification provider or by the sector as an authority. (This requirement does not apply to WHMIS.);
- include an assessment and evaluation component;
- include, wherever possible, documentation such as a certificate or other proof of completion for the student's portfolio and the student's SHSM Record. The SHSM Record will indicate the title of each certification earned or training course/program completed, the number of hours involved, and the date the certification/training was completed.

The SHSM in the environment requires students to complete seven (7) sector-recognized certifications and/or training courses/programs. Of these, four (4) are in areas that are compulsory and the remaining three (3) are to be chosen from the list in the following chart. These requirements are summarized below:

SHSM–The Environment: Sector-Recognized Certification and Training

Four (4) compulsory			
Standard First Aid	Cardio-Pulmonary Resuscitation (CPR)	global positioning system (GPS)	generic (i.e., not site-specific) instruction about the Workplace Hazardous Materials Information System (WHMIS)
Three (3) from the list below			
animal and plant management	chainsaw safety	customer service	Geographic Information System (GIS)
habitat restoration	Hike Ontario	ice safety	leadership
Leave No Trace	map and compass use	Ontario Hunter Education	Ontario Stream Assessment Protocol
paddling techniques	pleasure craft operation	radio operation	ropes/high ropes
species (e.g., fish, small mammal) identification	watershed management	wilderness first aid	

Note: Items that are capitalized are the *proper names* of specific certifications or training courses/programs that are appropriate for the SHSM. Items that are lowercased are names of the areas or categories within which specific certification or training courses/programs should be selected by the school or board.

Boards and schools may provide opportunities for students to complete additional training.

No substitutions for items in the above lists or changes in the *number* of required certifications and training courses/programs are permitted.

3. Experiential Learning

The SHSM experiential learning requirement consists of planned learning activities that take place outside the traditional classroom setting. Experiential learning, which can include job shadowing, job twinning, work experience, virtual work experience, and cooperative education (see Appendix B), enables students enrolled in the SHSM to find out about opportunities available to them in connection with the careers that interest them.

Experiential learning activities give students opportunities to explore, observe, participate in, and reflect on a variety of sector-specific experiences and careers. They also enable students to increase their awareness of, and develop, the Essential Skills and work habits required in the sector, and have their performance of those skills and habits assessed and documented, using tools connected with the Ontario Skills Passport. An experiential assignment or task could require students to identify examples of how the Essential Skills are applied in specific administrative and management occupations (e.g., conservation officer, recycling manager) in an environment-sector workplace.

Experiential learning activities and experiences could include:

- one-on-one observation of a cooperative education student in a placement in the environment sector (example of job twinning);
- a day-long observation of an environment sector employer or employee (example of job shadowing)
- a one- or two-week work experience with a member of an industry association or a professional in the sector (example of work experience);
- attendance at a sector trade show, conference, symposium, or job fair;
- a tour of a municipal planning department or water/sewage treatment facility;
- a volunteer experience with a not-for-profit conservation or naturalist organization (e.g., fundraising for the Nature Conservancy of Canada or working on a survey for a birding club's newsletter).

An experiential learning activity connected with the student's postsecondary pathway of choice can be considered a "reach ahead" experience (see section 4 below). For example, job shadowing a conservation officer with the Ministry of Natural Resources would be an experiential activity for all students in an Environment SHSM, but could also be a "reach ahead" experience for a student considering a career as a conservation officer. Note, however, that the activity can be recorded *only once* on the student's SHSM Record – as either an experiential learning activity or a "reach ahead" experience. This restriction reflects the expectation, described earlier, that the student's SHSM program will offer a rich and varied range of experiential learning opportunities.

Cooperative education is also a form of experiential learning. However, for the purposes of the SHSM program requirements and the student's SHSM Record, the two cooperative education credits must be counted as part of the SHSM bundled credit requirement.

Experiential learning placements for students must be arranged by the school and must meet the following requirements:

- A placement must be assessed by a teacher before the student is assigned to it to ensure that the placement offers a positive learning environment and a safe workplace. (*See Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools*, 2000. Available online at www.edu.gov.on.ca/eng/document/curricul/secondary/coop/cooped.pdf.)
- A placement must have Workplace Safety and Insurance Board coverage through the ministry or the workplace.(See Policy/Program Memorandum No. 76A, September 27, 2000; excerpted in Appendix B of the *SHSM Implementation Guide*.)

For more information consult *Live Safe! Work Smart! Appendix for Cooperative Education and Other Forms of Experiential Learning*, at www.livesafeworksmart.net/english/coop/coop_appdx.htm.

For a summary of the regulations governing age requirements for working in and/or visiting workplaces in Ontario, see Appendix C.

4. "Reach Ahead" Experiences

Students in the SHSM in the environment must have learning experiences connected with their postsecondary pathway. "Reach ahead" experiences can range from visiting a college to investigate the program a student is considering, to sitting in on university classes in a student's field of interest, to discussing the postsecondary education, training, and experiences of someone in the occupation a student is interested in. These experiences can vary in length – from a few hours to the time necessary for a full course. Examples include:

- *Workplace:* touring a municipal water treatment facility
- *Apprenticeship training:* [*To be determined*]
- *College:* observing a class in an environmental technology program
- *University:* interviewing an environmental biologist
- *All pathways:* attending an environment sector trade show

Every "reach ahead" experience should have an assignment or task associated with it. For example, the assignment for a student considering a college pathway could be to interview a technologist to discover details about his or her training, and to write a report summarizing the technologist's answers.

5. Development of Essential Skills and Work Habits, and Use of the Ontario Skills Passport (OSP) for Purposes of Documentation

Human Resources and Social Development Canada (HRSDC) has identified and validated the Essential Skills that people need for life, learning, and work. Essential Skills are foundational skills that make it possible to learn technical skills and other job- or workplace-specific skills. They are skills that enable people to perform tasks required in their jobs and to participate fully in the workplace and in the community. These Essential Skills are transferable from

school to work, job to job, and sector to sector. The Ministry of Education and the Ministry of Training, Colleges and Universities have developed the Ontario Skills Passport (OSP) on the basis of the HRSDC's Essential Skills. The OSP also incorporates work habits that are beneficial not only for work but also for life and learning. The skills and work habits included in the OSP are as follows:

Essential Skills	Work Habits
• Reading Text • Writing • Document Use • Computer Use • Oral Communication *Numeracy* • Money Math • Scheduling or Budgeting and Accounting • Measurement and Calculation • Data Analysis • Numerical Estimation *Thinking Skills* • Job Task Planning and Organizing • Decision Making • Problem Solving • Finding Information	• Working Safely • Teamwork • Reliability • Organization • Working Independently • Initiative • Self-Advocacy • Customer Service • Entrepreneurship

The Ontario Skills Passport provides clear descriptions of Essential Skills that are used in nearly all occupations and of work habits that are important for success in the workplace. The OSP provides a common language that helps students build competence and confidence and make connections between school and their prospective careers. The OSP also provides employers with a consistent method of assessing the student's demonstration of these skills and work habits in the workplace.

Sector representatives consulted on the development of the SHSMs emphasized the importance of the Essential Skills and work habits included in the OSP. Students pursuing an SHSM–The Environment track their development of Essential Skills and work habits in their OSP Work Plan throughout their experiential learning activities (including cooperative education placements and "reach ahead" experiences). In consultation with the teacher, employers assess each student's demonstration of Essential Skills and work habits identified in the OSP and record their assessments in the student's OSP Work Plan.

See the *SHSM Implementation Guide* for more information about the OSP and how it can be used in connection with an SHSM program. The OSP website (http://skills.edu.gov.on.ca) also offers resources for the use of the OSP in SHSM programs.

D. Pathways for the SHSM–The Environment

Shaping Our Schools, Shaping Our Future, published in June 2007, is the report of the Working Group on Environmental Education, appointed by the Ontario government to make recommendations about environment education in Ontario. In the report, the Working Group stated that environmental education should be "highly visible within, and reflected across, the Ontario curriculum" (page 13). With the implementation of this recommendation, students will have opportunities to learn about the environment in every elementary and secondary school grade.

The SHSM–The Environment provides a focus for students in the elementary and junior high school grades who become sufficiently interested in the environment to want to pursue a career in this area. To help educators support the interests of these students, this section provides:

- ideas that schools and boards can use to promote awareness and exploration of the SHSM in the environment among students and to help students as they make the decision to specialize in this program
- a chart showing a pathways template for completing the SHSM–The Environment
- a chart that contains sample bundles of credits for the SHSM–The Environment

Strategies for Promoting and Suggestions for Planning the SHSM–The Environment

Grades 7 and 8: Awareness

The following are examples of strategies that boards and schools can use to build Grade 7 and 8 students' awareness of the SHSM program:

- organize field trips, competitions, and activities in the community that are specific to the SHSM
- host presentations or talks on careers with guest speakers and mentors from the sector
- hold a summer program sponsored by the sector before students enter secondary school
- organize experiences at a secondary school in the program related to this sector
- invite current SHSM–The Environment students to share their experiences

Grades 9 and 10: Exploration

Teachers who want to encourage students interested in pursuing the SHSM–The Environment can make sure that these students are better informed about this industry sector by:

- developing activities that both address curriculum expectations in geography and science courses and let students explore environmental issues
- encouraging them to enrol in Career Studies (compulsory) and Discovering the Workplace because some of the expectations in these Grade 10 courses provide opportunities for students to explore occupations and other postsecondary options in the sector and to participate in experiential learning activities.

Grades 11 and 12: Specialization

Students acquire the sector-specific knowledge and skills required to earn their OSSD with an SHSM–The Environment by completing its five required components. Students and their parents/guardians are encouraged to consult with guidance counsellors and teachers to select the courses that will enable them to pursue their goals.

Students may want to consider the Ministry of Natural Resources Ontario Ranger Program as a summer co-operative education placement.

Pathways Template for the SHSM–The Environment

- Shaded boxes – required credits in the bundle for the SHSM–The Environment
- (C) – compulsory credits for the OSSD
- (R) – courses that are recommended in light of the student's pathway and career interests

Grade 9 *Exploration*	**Grade 10** *Exploration*	**Apprenticeship Training Pathway** *Specialization*		**College Pathway** *Specialization*		**University Pathway** *Specialization*		**Workplace Pathway** *Specialization*	
		Grade 11	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English
(C) Mathematics	(C) Mathematics	(C) Mathematics	(R) Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	An optional or a compulsory credit
(C) Science	(C) Science	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) Geography of Canada	(C) Canadian History	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**
(C) Core French	(C) Career Studies/ Civics	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**	**Environment Major**
(C) Healthy Active Living Education	(C) The Arts	May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *recommended in Gr. 11**		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*	
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit

* Students in the university pathway are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

Sample Bundles of Credits for the SHSM–The Environment

- Shaded boxes – required credits in the bundle for the SHSM–The Environment
- (C) – compulsory credits for the OSSD
- (R) – courses that are recommended in light of the student's pathway and career interests
- The letters C, E, M, O, and U at the end of course codes indicate the following types of courses: C – college preparation; E – workplace preparation; M – university/college preparation; O – open; U – university preparation
- A list of **all** courses that are approved for inclusion in the bundle of credits for an SHSM–The Environment is available on the Ministry of Education website, at www.edu.gov.on.ca

Apprenticeship Training Pathway		College Pathway		University Pathway		Workplace Pathway	
Grade 11	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**	**Grade 11**	**Grade 12**
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) ENG3C English	(C) ENG4C English	(C) ENG3C English	(C) ENG4C English	(C) ENG3U English	(C) ENG4U English	(C) ENG3E English	(C) ENG4E English
(C) MEL3E Mathematics for Work and Everyday Life	(R) MEL4E Mathematics for Work and Everyday Life	(C) MBF3C Foundations for College Mathematics	MAP4C Foundations for College Mathematics	(C) MCR3U Functions	MHF4U Advanced Functions	(C) MEL3E Mathematics for Work and Everyday Life	GLN4O Navigating the Workplace
CGT3E Geographics: The Geographer's Toolkit	SNC4E Science	SNC3M Science	TFS4C Tourism	SCH3U Chemistry	SCH4U Chemistry or SBI4U Biology	TCJ3E Construction Technology or TDJ3E Technological Design	TCJ4E Construction Technology or TDJ4E Technological Design
Environment Major SBI3C Biology or SNC3E Science	**Environment Major** PAD4O Outdoor Activities	**Environment Major** SBI3C Biology	**Environment Major** SCH4C Chemistry	**Environment Major** SBI3U Biology	**Environment Major** SBI4U Biology or SCH4U Chemistry	**Environment Major** SNC3E Science	**Environment Major** PAD4O Outdoor Activities
Environment Major CGT3E Geographics: The Geographer's Toolkit	**Environment Major** CGR4E The Environment and Resource Management	**Environment Major** CGF3M Physical Geography: Patterns, Processes, and Interactions	**Environment Major** CGR4M The Environment and Resource Management	**Environment Major** CGF3M Physical Geography: Patterns, Processes, and Interactions	**Environment Major** CGR4M The Environment and Resource Management	**Environment Major** CGT3E Geographics: The Geographer's Toolkit	**Environment Major** CGR4E The Environment and Resource Management
May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*		May be used as a (C) Cooperative Education (2 credits) *recommended in Gr. 11**		May be used as a (C) Cooperative Education (2 credits) *in either Gr. 11 or Gr. 12*	
CGG3O Travel and Tourism: A Regional Geographic Perspective or EPS3O Presentation and Speaking Skills	Cooperative Education or TFS4C Tourism	PAD3O Outdoor Activities or EPS3O Presentation and Speaking Skills	PPL4O Healthy Active Living Education or PAD4O Outdoor Activities	SPH3U Physics or SNC3M Science	CGW4U Canadian and World Issues or MDM4U Mathematics of Data Management	PPL3O Healthy Active Living Education or EPS3O Presentation and Speaking Skills	Cooperative Education or SNC4E Science

* Students in the university pathway are advised to complete their cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

E. Occupations in the Environment Sector

The National Occupation Classification (NOC) is a system that describes and classifies all occupations in Canada using four-digit codes called National Occupation Codes (NOC). This system and the codes are the authoritative source for occupational information in Canada. Entering one of these four-digit codes in the "Quick Search" box on the NOC website (http://www23.hrdc-drhc.gc.ca/2001/e/generic/welcome.shtml) provides occupational information related to that career.

For more information on occupations, go to the Ontario Skills Passport website (http://skills.edu.gov.on.ca), click on "Occupations and Tasks" in the navigation bar, select "Sorted by NOC", and click on the "Sample Workplace Tasks" checkmark for one of the occupations to view a description of the occupation, an overview of the Essential Skills required in the occupation, a list of sample tasks for the occupation, and assessment tools and other career and employment information related to the occupation.

The following are examples of occupations in the environment sector, with corresponding NOC codes, sorted according to the type of postsecondary education or training the occupations would normally require.

Note: Some of the names of occupations given below may differ slightly from the names in the NOC. The names listed here reflect common usage by institutions and organizations in this sector in Ontario.

Apprenticeship Training	College
• *[To be determined]*	• Biological Technologist or Biological Technician 2221 • Conservation Officer or Fishery Officer 2224 • Environmental Technician 2231 • Field Technician – Air Pollution 2231 • Forest Ecologist 2121 • Habitat Management Technician 2221 • Hatchery or Fisheries Technician 2221 • Land Surveyors 2154 • Quality Control – Chemical Engineering Technologist 2211 • Soil Testing Technologist 2231 • Technician – Pollution Control 2231

University

- Air Quality Meteorologist 2114
- Climatologist 2114
- Environmental Biologist 2121
- Environmental Engineer 2131
- Environmental Impact Analyst 4161
- Environmental Planner 2153
- Environmental and Occupational Toxicologist 2121
- Environmental Program Co-ordinator 4161
- Interpretive Naturalist 2121
- Waste Diversion Consultant 4161

Workplace

- Outdoor Sport and Recreation Guide 6442
- Recycled Paper Handler 7452
- Wastewater Treatment Plant Operator 9424

F. Postsecondary Programs and Training Related to Careers in the Environment Sector

The following are examples of programs and training related to careers in the environment sector and the accreditations or types of accreditation each results in:

Apprenticeship Training

TBD

College

Chemical Engineering Technology – Environmental	Advanced diploma
Ecosystem Management Technology	Diploma/Advanced diploma
Ecotourism and Adventure Tourism	Certificate
Environmental and Civil Engineering Technology	Diploma
Environmental Health and Safety	Bachelor's degree
Environmental Landscape Management	Diploma
Environmental and Natural Resource Studies	Diploma
Environmental Science and Technology	Bachelor's degree
Environmental Technology	Diploma/Advanced diploma
Fish and Wildlife Technician/Technology	Diploma/Advanced diploma
Geographic Information Systems – Applications	Diploma
Geographic Information Systems – Cartography	Diploma
Earth Resources Technology	Diploma
Geomatics Technology	Diploma
Integrated Environmental Site Remediation	Bachelor's degree
Natural Resources – Law Enforcement	Diploma
Park Operations and Outdoor Recreation	Diploma

University

Agricultural and Environmental Science	Bachelor's degree
Ecology	Bachelor's degree
Engineering (Environmental, Water Resources, Biological)	Bachelor's degree
Environment and Business	Bachelor's degree
Environment and Resource Studies	Bachelor's degree
Environmental Biology	Bachelor's degree
Environmental Design	Bachelor's degree
Environmental Engineering	Bachelor's degree
Environmental Science	Bachelor's degree
Environmental Studies	Bachelor's degree
Environmental Toxicology	Bachelor's degree
Geomatics and Geographic Information Systems	Bachelor's degree
Land Resource and Soil Science	Bachelor's degree
Natural Resources Management	Bachelor's degree
Renewable Resources	Bachelor's degree

Training for the Workplace

Campground Operator	Certificate
Canoe/Hiking Guide	Certificate
Customer Service – Environmental Sector	Certificate
Freshwater Angling Guide	Certificate
Hunting Guide	Certificate
Municipal Grounds Person	Certificate
Outdoor Adventure Skills	Certificate
Tour Guide	Certificate

G. Resources

Associations and Other Professional Groups

Air and Waste Management Association – Ontario	www.awma.on.ca
Alliance of Sector Councils	www.councils.org
BioTalent Canada	www.biotalent.ca
Bird Studies Canada	www.bsc-eoc.org/
Canadian Association for Renewable Energies	www.renewables.ca
Canadian Association of Recycling Industries	www.cari-acir.org
Canadian Forestry Association	www.canadianforestry.com
Canadian Society of Environmental Biologists	www.cseb-scbe.org/
Conference Board of Canada	www.conferenceboard.ca
Conservation Council of Ontario	www.greenontario.org
Conservation Ontario	www.conservation-ontario.on.ca
Council of Outdoor Educators of Ontario	www.coeo.org/aboutus.htm
David Suzuki Foundation	www.davidsuzuki.org
Ducks Unlimited	www.ducks.ca
Environmental Commissioner of Ontario	www.eco.on.ca
Environmental Education Ontario	www.eeon.org
Federation of Ontario Naturalists	www.ontarionature.org
Nature Conservancy of Canada	www.natureconservancy.ca
Ontario Association of Geographic and Environmental Education	www.oagee.org/conferences.html
Ontario Centres of Excellence – Centre for Earth and Environmental Technologies	www.oce-ontario.org
Ontario Cooperative Education Association	www.ocea.on.ca
Ontario Council for Technology Education	www.octe.on.ca
Ontario Environment Industry Association	www.oneia.ca

Ontario Environmental Network	www.oen.ca
Ontario School Counsellors' Association	www.osca.ca
Ontario Stewardship Council	www.ontariostewardship.org
Ontario Waterworks Association	www.owwa.com
Skills Canada	www.skillscanada.com
Skills Canada – Ontario	www.skillsontario.com

Careers

Apprentice Search	www.apprenticesearch.com
Canada Job Futures	www.jobfutures.ca/
Career Cruising	www.careercruising.com
Employment Ontario	www.edu.gov.on.ca/eng/tec/etlanding.html
Environmental Careers Organization Canada	www.eco.ca
Job Bank	www.jobbank.gc.ca/
Labour Market Information	www.labourmarketinformation.ca
Ontario Prospects	www.ontarioprospects.info
Ontario Skills Passport (OSP)	http://skills.edu.gov.on.ca/
Ontario WorkInfoNet	www.onwin.ca/english
Statistics Canada	www.stat.can
Youth Opportunities Ontario	www.youthjobs.gov.on.ca

Education/Government

Applications of Working and Learning National Project	www.awal.ca/about.asp
Environment Canada	www.ec.gc.ca/envhome.html
Federal Resources for Educational Excellence	www.free.ed.gov
Independent Learning Centre	www.ilc.org
Industry Canada	www.ic.gc.ca/epic/site/ic1.nsf/en/home
Ministry of Education	www.edu.gov.on.ca
Ministry of Energy	www.energy.gov.on.ca
Ministry of Labour	www.labour.gov.on.ca
Ministry of Natural Resources	www.mnr.gov.on.ca

Ministry of Research and Innovation	www.mri.gov.on.ca
Ministry of the Environment	www.ene.gov.on.ca
Ministry of Training, Colleges and Universities	www.edu.gov.on.ca/eng
Ontario College Application Service	www.ontariocolleges.ca
Ontario Universities' Application Centre	www.ouac.on.ca
Passport to Prosperity	www.edu.gov.on.ca/passport
Towes: How Do Your Skills Measure Up? Skill Plan	http://measureup.towes.com

Safety, Training, and Certifications

Canada Safety Council (CSC)	www.safety-council.org
Canadian Centre for Occupational Health and Safety (CCOHS)	www.ccohs.ca/
Canadian Red Cross Society	www.redcross.ca
Industrial Accident Prevention Association (IAPA)	www.iapa.ca/home/home.asp
Leave No Trace Canada	www.leavenotrace.ca
Life Saving Society	www.lifesaving.ca
Live Safe! Work Smart!	www.livesafeworksmart.net
Passport to Safety	www.passporttosafety.com
Prevention Dynamics	www.preventiondynamics.com
St. John Ambulance	www.sja.ca
Virtual WHMIS	www.virtualwhmis.com
Workplace Safety and Insurance Board (WSIB)	www.wsib.on.ca

H. Appendices

Appendix A: Contextualized Learning Activities (CLAs) for the Specialist High Skills Majors

For the "other required credits" in the bundle of credits, students in a Specialist High Skills Major program must complete learning activities that are contextualized to the knowledge and skills relevant to the economic sector of the SHSM. Contextualized learning activities (CLAs) address curriculum expectations in these courses.

CLAs must take a minimum of 6 hours to complete. Boards may choose to develop one activity that takes 6 hours to complete or two or more activities that together take a minimum of 6 hours to complete.

This template must be used to describe the CLAs. The completed form must be submitted to the Ministry of Education for approval.

(continued)

Appendix A ***(continued)***

Contextualized Learning Activity (CLA) Template

Submit all material in Microsoft Word.

Contact Information

Board: _____

Development date: _____

Contact person: _____

Position: _____

Phone: ( )_____-_____ Fax: ( )_____-_____ E-mail: _____

Specialist High Skills Major	
Course code and course title	
Name of contextualized learning activity/activities	

Brief description of contextualized learning activity/activities	
Duration	*(A minimum of 6 hours to complete the CLA(s) is required.)*
Overall expectations	*(Identify the overall expectation(s) to be assessed and/or evaluated through the CLA(s). Include strand title(s).)*
Specific expectations	*(Identify the specific expectations related to the above overall expectation(s) that are addressed in the instructional and assessment strategies of the CLA(s). Include strand title(s) and suborganizer(s).)*
Essential Skills and work habits from the OSP	*(List the Essential Skills and work habits from the OSP that are addressed in the CLA(s).)*
Catholic graduate expectations (if applicable)	

Instructional/Assessment Strategies

Teacher's Notes *(Provide suggestions that will assist the teacher in delivering the CLA(s). For example, remind teachers to make sure that handouts, such as authentic workplace materials/documents used by the sector, are available for the activity.)*

Context *(Describe the workplace context for the activity/activities.)*

Strategies *(In point form, describe the sequence of instructional and assessment strategies that will support the intended learning. Attach all student handouts and worksheets.)*

Assessment and Evaluation of Student Achievement – Summary

(List all assessment and evaluation strategies and tasks, based on the strategies identified in the preceding section. Attach checklists, rubrics, correction keys, etc.)

Strategies/Tasks *(add rows as required)*	**Purpose** Assessment *for* learning (diagnostic, formative) *OR* Assessment *of* learning (summative; for evaluation)
1.	
2.	
3.	
4.	
5.	
6.	

Additional Notes/Comments/Explanations

(Provide additional suggestions for teachers that will help them deliver the CLA(s).)

Resources

(List all the resources needed to support the implementation of the CLA(s).)

Authentic Workplace Materials *(e.g., blueprints, workplace manuals, specification sheets, spreadsheets)*

Human Resources

Print

Video/DVD

Software

Websites

Other

Accommodations

(List instructional, environmental, and assessment accommodations.)

List of Attachments

(Attach all related materials, e.g., student worksheets, tests, rubrics.)

Appendix B: Forms of Experiential Learning and Related Programs

Length	Credit Value	Description	Key Elements
Job shadowing			
1/2 to 1 day (in some cases, up to 3 days)	none	one-on-one observation of a worker at a place of employment	• involves the pairing of a student with a worker in a specific occupation • may be integrated with a credit course • may be part of a student's school–work transition program
Job twinning			
1/2 to 1 day	none	one-on-one observation of a cooperative education student at his or her placement	• involves the pairing of a student with a cooperative education student • may be integrated with a credit course • may be part of a student's school–work transition program
Work experience			
1–4 weeks	none	a planned learning opportunity, within any credit course, that provides students with relatively short-term work experiences, usually of one or two weeks' duration and not exceeding four weeks	• involves a short-term, subject-related work placement • forms an integral part of a specific credit course • requires pre-placement orientation • requires a personalized placement learning plan
Virtual work experience			
the equivalent of 1–4 weeks	none	a simulated work experience, within any credit course, that allows students, including students who receive a special education program or services and students in rural areas, to take advantage of a greater variety of experiences than those available in the local economy	• involves a short-term, subject-related virtual work placement facilitated through the use of computer software and the Internet • forms an integral part of a specific credit course • requires pre-placement orientation • requires a personalized placement learning plan
Cooperative education			
full term (year or semester)	1 credit per 110-hour cooperative education credit course successfully completed	a planned learning experience, for which credits are earned, that integrates classroom theory and learning experiences at a workplace to enable students to apply and refine the knowledge and skills acquired in a related curriculum course or a locally developed course	• requires a personalized placement learning plan • involves the earning of credits • requires 15 hours of pre-placement instruction • is monitored by the cooperative education teacher • has a classroom and a workplace component • involves reflective learning • requires 7 hours of integration per co-op credit

Length	Credit Value	Description	Key Elements
School–work transition programs			
varies, but typically not less than 2 years (3–4 semesters over Grades 11 and 12)	varies with type of planned workplace experience	a combination of school- and work-based education and training involving a variety of learning opportunities	• is oriented towards students who will be entering the workforce directly after high school • involves the development of partnerships with employers • involves the enhancement of curriculum with input from employers • involves the earning of cooperative education credits
Ontario Youth Apprenticeship Program (OYAP)			
varies, but typically not less than 2 years (3–4 semesters over Grades 11 and 12)	varies with opportunities	an opportunity for a student to meet diploma requirements while participating in an apprenticeship occupation	• is designed for students 16 years of age and older who have already earned 16 credits towards the OSSD • may involve the student's registration in an apprenticeship • requires documentation by the student and trainer regarding trade-specific competencies acquired • involves the earning of cooperative education credits

(From Ontario Ministry of Education, *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000*, pp. 7–8)

Appendix C: Minimum Age to Work in and Visit Ontario Workplaces[1]

<table>
<tr><th>Specialist High Skills Major[2]</th><th>Type of Workplace</th><th>Minimum Age to Work</th><th>Minimum Age to Visit / Conditions for Visiting[3]</th></tr>
<tr><td>• Arts and Culture
• Business
• Health and Wellness
• Hospitality and Tourism</td><td>Industrial establishments,[4] such as offices, stores, arenas, restaurant serving areas</td><td>14</td><td rowspan="3">The regulation governing industrial establishments (Reg. 851, R.R.O. 1990) made under the OHSA sets out minimum age restrictions for workers, covering workplaces such as offices, stores, arenas, restaurants, and factories. However, the regulation states that people younger than the specified minimum age to work may visit (but not work in) these establishments if:
• they are accompanied by a person who has attained the age of majority (i.e., 18 years of age);
• they are being guided on a tour of the industrial establishment (e.g., office, store, arena, or factory);
• they are in an area of the industrial establishment used for sales purposes; or
• they are in an area of the establishment to which the public generally has access.</td></tr>
<tr><td>• Business
• Hospitality and Tourism
• Manufacturing
• Transportation</td><td>Most factories,[5] including restaurants and any commercial kitchens, automotive service garages, produce and meat preparation or shipping and receiving areas in grocery stores, laundries, and warehouses</td><td>15</td></tr>
<tr><td>• Forestry</td><td>Logging operations[6]</td><td>16</td></tr>
<tr><td>• Construction</td><td>Construction project[7]</td><td colspan="2">16
Under the regulation governing construction projects (O. Reg. 213/91) made under the OHSA, 16 is the minimum age to work on or to visit any construction project. A person under the age of 16 may visit a construction site only when work is not being performed there. (Note that the definitions of construction and construction project include a wide variety of types of work and workplaces. It is important to review the definitions carefully. See note 7, below.)</td></tr>
</table>

All notes appear on pages 33–35.

Specialist High Skills Major[2]	Type of Workplace	Minimum Age to Work	Minimum Age to Visit / Conditions for Visiting[1]
• Mining	Surface mines,[8] mining plants[9] Underground mine Working face of a surface mine	16 18 18	The regulation governing mines and mining plants (Reg. 854, R.R.O. 1990) made under the OHSA allows for tours or visits to mines and mining plants by persons who are younger than the specified minimum age to work if they are accompanied by and under the direction of a guide.
• Agriculture • Arts and Culture • Environment • Health and Wellness • Horticulture and Landscaping	Certain workplaces (or parts thereof) may be covered, with respect to age restrictions, by regulations governing other sectors. For example, see the industrial establishments regulation (Reg. 851, R.R.O. 1990).		
• Construction • Manufacturing	Window cleaning	18	*Not applicable.* (The regulation governing window cleaning is Reg. 859, R.R.O. 1990.)

Notes to Appendix C

1. As specified in regulations made under the Occupational Health and Safety Act (OHSA). Other statutes and regulations made under those statutes also set minimum ages for various occupations.

   In addition, some workplaces have established their own, *more stringent* minimum ages for employment. For instance, some retail establishments and restaurant chains will not hire anyone under the age of 16, even though the legislated minimum age limit is lower. Similarly, some industrial establishments, and other workplaces that require the use of heavy equipment or machinery, will not hire anyone under the age of 18, even though the legislated minimum age limit might be lower. Such in-house minimum age requirements may be acceptable, as long as the limits do not conflict with the Ontario Human Rights Code or other applicable law.

2. Column 1 identifies the Specialist High Skills Majors with which the workplace categories in column 2 may be associated. Note, however, that some specialist programs may involve workplaces identified in more than one category (e.g., a business program may involve offices, factories, and construction sites). When using this chart to verify compliance

(continued)

with minimum age to work and visit requirements, always refer to the particular type of workplaces involved in the program (column 2), not to the sector to which the program relates (column 1).

3. Under certain conditions, as identified in this table, persons younger than the minimum age to work may visit, *but not work in*, certain workplaces.

4. According to the OHSA, ***industrial establishment*** means an office building, factory, arena, shop or office, and any land, buildings and structures appertaining thereto.

5. According to the OHSA, ***factory*** means

   a) a building or place other than a mine, mining plant or place where homework is carried on, where,

      i) any manufacturing process or assembling in connection with the manufacturing of any goods or products is carried on,

      ii) in preparing, inspecting, manufacturing, finishing, repairing, warehousing, cleaning or adapting for hire or sale any substance, article or thing, energy is,

         (A) used to work with any machinery or device, or

         (B) modified in any manner,

      iii) any work is performed by way of trade or for the purposes of gain in or incidental to the making of any goods, substance, article or thing or part thereof,

      iv) any work is performed by way of trade or for the purposes of gain in or incidental to the altering, demolishing, repairing, maintaining, ornamenting, finishing, storing, cleaning, washing or adapting for sale of any goods, substance, article or thing, or

      v) aircraft, locomotives, or vehicles used for private or public transport are maintained,

   b) a laundry including a laundry operated in conjunction with,

      i) a public or private hospital,

      ii) a hotel, or

      iii) a public or private institution for religious, charitable or educational purposes, and

   c) a logging operation.

6. According to the OHSA, ***logging*** means the operation of felling or trimming trees for commercial or industrial purposes or for the clearing of land, and includes the measuring, storing, transporting or floating of logs, the maintenance of haul roads, scarification, the carrying out of planned burns and the practice of silviculture.

7. According to the OHSA, ***construction*** includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project but does not include any work or undertaking underground in a mine.

Project means a construction project, whether public or private, including,

a) the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, water main, service connection, telegraph, telephone or electrical cable, pipe line, duct or well, or any combination thereof,

b) the moving of a building or structure, and

c) any work or undertaking, or any lands or appurtenances used in connection with construction.

8. According to the OHSA, ***mine*** means any work or undertaking for the purpose of opening up, proving, removing or extracting any metallic or non-metallic mineral or mineral-bearing substance, rock, earth, clay, sand or gravel.

9. According to the OHSA, ***mining plant*** means any roasting or smelting furnace, concentrator, mill or place used for or in connection with washing, crushing, grinding, sifting, reducing, leaching, roasting, smelting, refining, treating or research on any substance mentioned in the definition of "mine" (see note 8, above).

Program Profiles

Program Profile: Bluewater District School Board

Name of Initiative	**Eco-Tourism**
Brief description	This program focuses on ecology, wind power, and the 100-mile diet, and has the Duke of Edinburgh's Award program as a component. Students take advantage of the Bruce Peninsula's two national parks, using them for field trips and to develop their canoeing, hiking, fitness, and swimming skills. Photography and documentary making are included in the program.
Number of students	80
Board	**Bluewater District School Board** Box 190 351 1st Ave North Chesley ON N0G1L0
Board contact	Name: Jean Stephenson Title: Student Success Leader Phone: 519-363-2014 ext. 283 Fax: 519-363-3715 E-mail: jean_stephenson@bwdsb.on.ca
School 1	**Bruce Peninsula District School** Box 178 5 Moore St Lion's Head ON N0H1W0
School contact	Name: Mathew Pickett Title: Principal Phone: 519-793-3211 ext. 527 Fax: 519-793-4250 E-mail: Mathew_Pickett@bwdsb.on.ca
School 2	**Grey Highlands Secondary School** Box 460 Flesherton ON N0C 1E0
School contact	Name: Anne MacLaughlin Title: Principal Phone: 519-924-2721 ext. 527 Fax : 519-924-3907 E-mail: Anne_maclaughlin@bwdsb.on.ca

Partners:	
Business/Community	• Bruce Trail Association • Canadian Coast Guard • Duke of Edinburgh Institute for Outdoor Education • Parks Canada • Sky Generations • UNESCO – Peninsula Biosphere
College	Georgian College

Program Profile: Catholic District School Board of Eastern Ontario

Name of Initiative	**Integrated Environmental Studies**
Brief description	This program aims to meet the needs and interests of students in all postsecondary pathways and, while doing so, assist the community. The program integrates the following concepts: environmental protection, conservation and preservation of natural resources, sustainability, and stewardship, and includes experiential learning opportunities consisting of projects that focus on GPS mapping, weather systems tracking, soil science, plant propagation, shoreline restoration, ground water protection, and/or sustainable property management. All projects feature green technologies.
Number of students	15
Board	**Catholic District School Board of Eastern Ontario** 2755 Hwy 42 Kemptville ON K0G 1J0
Board contact	Name: Sheila Farris Title: Supervising Principal of Student Success Phone: 613-283-5007 ext. 263 Fax: 613-283-5783 E-mail: Sheila.Farris@cdsbeo.on.ca
School	**St. Michael Catholic High School** 2755 Hwy 43 Kemptville ON K0G 1J0
School contacts	Name: Sean Souter Title: Teacher Phone: 613-258-7232 Fax: 613-258-3527 E-mail: Sean.Souter@cdsbeo.on.ca Name: Allister Wood Title: Teacher Phone: 613-258-7232 Fax: 613-258-3527 E-mail: Allister.Wood@cdsbeo.on.ca

Partners:	
Business/Community	- Ferguson Forestry Centre - Rideau Valley Conservation Authority - The Giving Garden - Wildflower Nursery
College	Algonquin College
University	University of Guelph – Kemptville Campus

Program Profile: Conseil des écoles publiques de l'Est de l'Ontario

Name of Initiative	**Environmental Sciences and Sustainable Development**
Brief description	Students interested in careers in the environment will find that this program facilitates access to occupations in the sector by giving them a theoretical framework and opportunities to apply what they learn to projects in this field (e.g., projects focusing on biodiesel energy or on aspects of sustainable development).
Number of students	40
Board	**Conseil des écoles publiques de l'Est de l'Ontario** 2445, boulevard St-Laurent Ottawa ON K1G 6C3
Board contact	Name: Suzanne Moncion Title: Surintendante de l'éducation Phone: 613-742-8960 ext. 2256 Fax: 613 842-8740 E-mail: Suzanne.moncion@cepeo.on.ca
School	**École secondaire publique Gisèle-Lalonde** 500, boulevard Millennium Orléans ON K4A 4X3
School contact	Name: Caroline Côté Title: Enseignante Phone: 613-833-0018 Fax: 613 830-3030 E-mail: Caroline.coté@cepeo.on.ca
Partners:	
Business/Community	- City of Ottawa - International Geographic Information System Day - Projet Karyne - Scout vélotour
College	La Cité collégiale
Universities	- Campus d'Alfred – Université de Guelph - Université d'Ottawa

Program Profile: Conseil scolaire de district catholique de l'Est ontarien

Name of Initiative	**Environmental Sciences**
Brief description	This program is offered in cooperation with the Conseil des écoles publiques de l'Est de l'Ontario and the Conseil des écoles catholiques de langue française du Centre-Est. It enables students who are interested in careers in environmental sciences to develop skills and have enriching and relevant experiences related to work in this area.
Number of students	24
Board	**Conseil scolaire de district catholique de l'Est ontarien** 875, chemin de comté 17 L'Orignal ON K0B 1K0
Board contact	Name: Céline Cadieux Title: Surintendante de l'éducation Phone: 613-675-4691 Fax: 613-675-2789 E-mail: cadice@csdceo.on.ca
School 1	**École secondaire catholique régionale de Hawkesbury** 572, rue Kitchener Hawkesbury ON K6A 2P3
School contact	Name: Denis Lanthier Title: Directeur Phone: 613-632-7055 Fax: 613-632-5455 E-mail: lantde@csdceo.on.ca
School 2	**École secondaire catholique L'Escale** 1535, avenue du Parc Rockland ON K4K 1K6
School contact	Name: Denis Tardif Title: Directeur Phone: 613-446-5169 Fax: 613-446-6219 E-mail: tardde@csdceo.on.ca

Partners:	
Business/Community	- Intendance environnementale de Prescott-Russell - L'union des cultivateurs franco-ontariens - Ontario Forestry Association - Société environnementale de Clarence-Rockland - Tucker House Renewal Centre
College	La Cité collégiale
Universities	- Campus d'Alfred – Université de Guelph - Université d'Ottawa

Program Profile: Halton District School Board / Halton Catholic District School Board

Name of Initiative	**Royal Botanical Gardens ECO Studies Program / Bronte Creek Project**
Brief description	ECO Studies is an experiential environmental and earth science education program in which students attend classes at Aldershot School and the Royal Botanical Gardens. The Bronte Creek project is an environmental education and leadership program in which participating students teach ecology to elementary students.
Number of students	30–40
Board 1	**Halton District School Board** 2050 Guelph Line Burlington ON L7R 3Z2
Board contact	Name: Dave Lewis Title: Coordinator, Pathways, Guidance, and Co-op Education Phone: 905-335-3663 ext. 2225 Fax: 905-332-1891 E-mail: lewisd@hdsb.ca
Board 2	**Halton Catholic District School Board** 802 Drury Lane Burlington ON L7R 2Y2
Board contact	Name: Rob DeRubeis Title: Curriculum Consultant, Technological Studies Phone: 905-632-6314 Fax: 905-632-5417 E-mail: derubeisr@hcdsb.org
School 1	**Aldershot School** (Royal Botanical Gardens ECO Studies) 50 Fairwood Pl West Burlington ON L7T 1E5
School contact	Name: Caroline Conn-Smith Title: Principal Phone: 905-637-2383 Fax: 905-333-9185 E-mail: conn-smithc@hdsb.ca

School 2

Gary Allan High School (Bronte Creek Project)
215 Ontario St South
Milton ON L9T 4N5

School contacts

Name: David Boag
Title: Principal
Phone: 905-632-2944
Fax: 905-637-5390
E-mail: boagd@hdsb.ca

Name: Kim Wallace
Title: Coordinator
Phone: 905-335-3663
Fax: 905-332-1891
E-mail: wallqcek@hdsb.ca

Partners:

Business/Community

- Aldershot Community Council
- Bronte Creek Conservation Area
- Conservation Halton and Hamilton
- Royal Botanical Gardens

Program Profile: Keewatin-Patricia District School Board

Name of Initiative	**Babaamaadozoo-kakendaasowinnan**
Brief description	This program, which integrates instruction in and practical experiences related to indigenous culture and the environment, uses indigenous teachings related to the land and the community to promote environmental awareness. Respect and reciprocity are integral to these teachings. Students benefit from the program's comprehensiveness and from its interactive and holistic approach.
Number of students	15
Board	**Keewatin-Patricia District School Board** 100 First Ave West Kenora ON P9N3Z7
Board contact	Name: Mary Anne Bishop Title: Student Success Leader Phone: 807-727-3405 Fax: 807-727-1159 E-mail: Maryanne.bishop@kpdsb.on.ca
School	**Queen Elizabeth Secondary School** Box 548 15 Fair St Sioux Lookout ON P8T 1A9
School contacts	Name: Bonnie Szczerkowski Title: Teacher Phone: 807-737-3500 Fax: 807-737-1979 E-mail: bonnie.szczerkowski@kpdsb.on.ca Name: Nicole Carbone Title: Teacher Phone: 807-737-3500 Fax: 807-737-1979 E-mail: nicole.carbone@kpdsb.on.ca

Partners:	
Business/Community	• Lac Seul Education Authority • Ministry of Natural Resources • Northern Nishnawbe Education Council (NNEC)
College	Confederation College
University	Lakehead University

Program Profile: Superior-Greenstone District School Board

Name of Initiative	**Northern Studies – Conservation, Wildlife Management, and Eco-Tourism**
Brief description	This program prepares students by providing academic instruction, training, and certifications in ecotourism, conservation, and wildlife management. Students canoe and trap, learn and practise bush survival skills, and conduct fish/wildlife surveys and field studies.
Number of students	10–15
Board	**Superior-Greenstone District School Board** Bag A-12 Hemlo Dr Marathon ON P0T 2E0
Board contact	Name: Val Newton Title: Student Success Leader Phone: 807-229-0436 ext. 236 Fax: 807-229-1471 E-mail: vnewton@sgdsb.on.ca
School	**Manitouwadge High School** 200 Manitou Rd West Manitouwadge ON P0T 2C0
School contact	Name: B. Johnson Title: Principal Phone: 807-826-3241 Fax: 807-826-4862 E-mail: bjohnson@sgdsb.on.ca
Partners:	
Business/Community	• Black River Logging • Buchannan Forest Products • Canadian Ecology Centre • Manitouwadge Economic Development Corporation • Ministry of Natural Resources • Regional Power Corporation
College	Confederation College